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**Software Architecture  
in  
Project Management**

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## **Declaration**

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institute of tertiary education. Information derived from the published and unpublished work of others has been acknowledged in the text and a list of references is given.

Looi Kum Yeng

May 2001

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## ABSTRACT

Software architecture is vital for large and complex software systems in which the main means is controlling complexity. Currently, software development has been deteriorating from architecture point of view over the years as a result of adaptation of vast changing of system requirements. Consequently, architecture improvement of existing software is therefore turning more and more important.

Software architecture is a set of concepts and design decisions about the structure and texture of software that must be made prior to concurrent engineering to enable effective satisfaction of architecturally significant explicit functional and quality requirements and implicit requirements of the product family, the problem, and the solution domains. It provides a cohesive view to guide further design and development. Besides, it guides the wiring up of interacting modules on distributed system, analyze the behaviour and attributes of system prior to system development.

This research paper explains the utilization of software architecture in assisting the planning of resources in project management where constantly improving the overall quality and performance of software development. Architectural design provides a better picture of structure of structures of a system in a higher level of abstraction which in turn enhance the efficiency and effectiveness of recognizing risks and constraints, hence lowering down the cost and maximizing the resources utilization.

Besides, the research paper also describes the design of strategy for cost estimation, risk analysis and resource evaluation in project management. The strategy will give an in-depth knowledge in allowing project manager full control in resource planning and

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estimation. As a result, software architecture revolutionizes the working pattern and culture of a project manager.

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## List of Abbreviations

|       |  |
|-------|--|
| AAPM  | Architectural-Assisted Project Management        |
| ABC   | Architecture Business Cycle                      |
| ADL   | Architecture Definition Language                 |
| COM   | Common Object Module                             |
| CORBA | Common Object Request Broker Architecture        |
| CPM   | Critical Path Method                             |
| GUI   | Graphic User Interface                           |
| HTML  | Hypertext Markup Language                        |
| IEEE  | Institute of Electrical and Electronic Engineers |
| LCC   | Life-Cycle Costing                               |
| PERT  | Program Evaluation and Review Technique          |
| QA    | Quality Attribute                                |
| RPA   | Relation Partition Algebra                       |
| SAAM  | Software Architecture Analysis Method            |
| SOW   | Statement of Work                                |
| UML   | Unified Modeling Language                        |
| VB    | Visual Basic                                     |
| WBS   | Work Breakdown Structure                         |
| XML   | eXtensible Markup Language                       |